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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,441	08/27/2001	Hitoshi Kanazawa	14840 3997	
7590 05/14/2004		EXAMINER		
Scully Scott Murphy & Presser 400 Garden City Plaza			BERMAN, SUSAN W	
Garden City, NY 11530			ART UNIT	PAPER NUMBER
			1711	
			DATE MAIL ED: 05/14/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)			
	09/914,441	KANAZAWA, HITOSHI			
Office Action Summary	Examiner	Art Unit			
	Susan W Berman	1711			
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply					
A SHORTENED STATUTORY PERIOD FOR REPLY THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.13 after SIX (6) MONTHS from the mailing date of this communication.  - If the period for reply specified above is less than thirty (30) days, a reply If NO period for reply is specified above, the maximum statutory period we Failure to reply within the set or extended period for reply will, by statute, Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	36(a). In no event, however, may a reply be time within the statutory minimum of thirty (30) day will apply and will expire SIX (6) MONTHS from cause the application to become ABANDONE	nely filed s will be considered timely. the mailing date of this communication. D (35 U.S.C. § 133).			
Status					
1) Responsive to communication(s) filed on 17 February 2004.					
2a)⊠ This action is <b>FINAL</b> . 2b)☐ This	This action is FINAL. 2b) This action is non-final.				
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is					
closed in accordance with the practice under E	x parte Quayle, 1935 C.D. 11, 45	53 O.G. 213.			
Disposition of Claims					
4) Claim(s) 28-39 and 41-59 is/are pending in the application.					
4a) Of the above claim(s) is/are withdrawn from consideration.					
5) Claim(s) is/are allowed.					
6)⊠ Claim(s) <u>28-39,41-59</u> is/are rejected.					
7) Claim(s) is/are objected to.					
8) Claim(s) are subject to restriction and/or	r election requirement.				
Application Papers					
9) The specification is objected to by the Examine	r.				
10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.					
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).					
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).					
11) The oath or declaration is objected to by the Ex	aminer. Note the attached Office	Action or form PTO-152.			
Priority under 35 U.S.C. § 119					
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of:					
1. ☐ Certified copies of the priority documents have been received.					
2. Certified copies of the priority documents have been received in Application No					
3. Copies of the certified copies of the priority documents have been received in this National Stage					
application from the International Bureau (PCT Rule 17.2(a)).					
* See the attached detailed Office action for a list of the certified copies not received.					
Attachment(s)  1) Notice of References Cited (PTO-892)	4) Interview Summary	(PTO-413)			
2) Notice of References Cited (P10-692)  Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Da	ate			
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date	5)	atent Application (PTO-152)			
S Patent and Trademark Office	3,				

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## Response to Amendments

The rejection of claim 32 under 35 USC 112, second paragraph, is withdrawn in response to amendment of the claim to recite "carbonized polymeric materials". It is understood that this terminology is known in the art to refer to polymeric materials treated with a hydrocarbon monomer such as butadiene to introduce a hydrocarbon layer on the surface of the polymeric material.

The amendment filed 02-17-2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: for example: page 7, lines 15-10 "unsaturated bonds", page 32-33, the last three lines added to the paragraph. In claim 28, no disclosure corresponding to the recitation "when the material is not polypropylene... is observed" has been found within the specification as filed.

Applicant states an intention to file a certified translation to support the material added to the specification by the amendment field 02-17-2004; however, the certified translation has not been received.

Applicant is required to cancel the new matter in the reply to this Office Action. However, the objection will be reconsidered upon filing a certified translation of applicant's priority document.

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# Response to Amendments and Arguments

The amendment to claim 28 filed 02-17-2004 further limits (1) the activation step to one wherein the ratio of absorbance due to newly formed carbonyl groups and the absorbance due to methyl groups is about 0.2 or less for polypropylene and a corresponding ratio when the polymeric material is not polypropylene and (2) the treatment step to one wherein the weight increase of the treated polymeric material is less than 5 wt. %. Further process limitations are set forth in dependent claims 29-31.

#### **REJECTION UNDER 35 USC 112:**

With respect to the rejections under 35 USC 112: The rejection of claim 32 is withdrawn in response to applicant's amendment. It is agreed that "carbonized polymeric materials" are known in the art, as shown by the teachings of Valint, Jr. and Grobe, II et al.

#### PRODUCT BY PROCESS CLAIMS:

J '183: The rejection of claims over J '183 is maintained for the following reasons. The comparative data between Examples 1-11 and Comparative Examples 1 and 2 in the specification has been considered. The data shows a significant difference in percent water absorption and retention of water absorption for the invention examples compared with the comparative examples. However, comparative example 1 is not considered to be representative of the disclosure of JP '183 because no persulfate initiator was used in the process of comparative example 1. This representation of comparative example 1 will be reconsidered upon filing of a certified translation of applicant's priority document. Examples 1, 3 and 4 according to the invention are comparable with Comparative Example 1 and show higher initial water absorption and less change in water absorption than the comparative example. It is agreed that Example 18 also shows improved durability for the examples of the invention. Applicant argues that Example 17 can be compared with Comparative Example 4 representing J '183 to show a difference in water absorption resulting from the difference in methods. This argument is not persuasive

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because Comparative Example 4 merely states that the water absorption of cotton plain cloth is 108%.

Example 17 exemplifies ozone treatment of polypropylene film followed by chemically binding PVA in the presence of an initiator. The examples cannot be compared since different materials are employed.

Comparative Example 6 shows that a water absorption of 17% is obtained when a polypropylene film that has not been "activated" is treated with PVA in the presence of an initiator and solvent the water absorption is 17%. This comparison indicates that the activation step is critical for obtaining the water absorption desired in the instantly claimed invention.

With respect to J '752, the rejection of claims 46, 53, 55 and 56 as being anticipated by JP09012752 is hereby withdrawn for the following reasons. It is agreed that no initiator or catalyst is mentioned in the Abstract for use in the step of coating with a hydrophilic polymer after corona discharge treatment of the polystyrene substrate. The examiner argued previously that there is no evidence of record to show that the product obtained in the absence of an initiator or catalyst by the method taught by J '752 is significantly different from the instantly claimed product. In response applicant points out the different properties resulting from the method of Example 5 and Example 6 in the instant specification. The results show higher water absorption when the activated polymeric material is treated with a hydrophilic polymer in the presence of an initiator, as recited in the instant claims, than when treated in the absence of initiator, as taught by J '752 and shown in Example 5. The data in the Declaration of Hitashi Kanazawa filed 02-17-2004 is not persuasive because of the different times of corona discharge employed in comparative Example 9 (said to represent J '752) and Example 34 (representing the instant invention). It is not clear whether the different activation step or the difference in initiator presence or absence produces the reported difference in properties.

With respect to J '884, the rejection of claims is maintained for the following reasons. Applicant alleges that the product obtained would be different from the instantly claimed product because no initiator or catalyst is used in the step of treatment with a hydrophilic polymer. This argument is not

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persuasive for the following reasons. The Abstract discloses polymer synthetic fibers treated with polysiloxane and activated by plasma treatment before subsequently treating the surface with hydrophilic resin. The treatment of polymeric fibers with polysiloxane before activation by plasma treatment is encompassed by the comprising language in the instant claims. It is agreed that no initiator is mentioned in the Abstract. Comparative Example 10 in the Declaration of Hitashi Kanazawa filed 02-17-2004 is not considered to be representative of the teaching of J '884 because there is no plasma treatment of the polysiloxane derivative on the synthetic fiber cloth, as disclosed by J '884, before treatment with a hydrophilic polymer and is therefore not persuasive of different properties of the product obtained. The product obtained would be expected to be encompassed by the instant claims because there is no evidence of record to show that a significantly different product is obtained by the method disclosed by J '884 in comparison with a method requiring the presence of an initiator or catalyst as in the instant invention.

With respect to J '231, the rejection of claims is maintained for the following reasons. Applicant argues that the monomer grafting to a polymer substrate is carried out in the presence of initiators or catalysts in the instant invention while initiators or catalysts are not taught by J '231. This argument is not persuasive because the issue is whether the product taught by J '231, which is a hydrophilic vinyl polymer chemically bound to the surface of plasma treated polytetrafluoroethylene is the same or different in properties form the instantly claimed hydrophilic polymer bonded to a polymeric material such as polypropylene obtained by the method of claim 28, which does not set forth monomer grafting. Applicant's arguments about putting the substrate in air are not considered to be relevant to the claims as written.

With respect to Valint, Jr. and Grobe, III et al, the rejections of record are maintained for the following reasons. Applicant argues that the references teach monomer grafting directly after the activation step, while applicant includes a monomer grafting step after step (b), and that neither reference discloses the amount of carbonyl groups introduced into the surface by activation. It is agreed that the

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references teach introducing the hydrophilic polymer by monomer grafting. However, these arguments are not persuasive for the following reasons. The issue is that the product produced by the methods taught by Valint, Jr. or by Grobe, III et al would be expected to produce a product comprising a hydrophilic polymer chemically bonded to a polymeric substrate that would be expected to be the same as the instantly claimed product although made by a different method, in the absence of evidence to the contrary. Applicant points to Example 35 in the 02/04 Declaration of Hitoshi Kanazawa as representative of the references. Applicant reports that the formation of carbonyl groups after plasma oxidation for 20 seconds was not estimated in the Example. Therefore, it is not known whether the prior art method provides the ratio recited in the instant claims or whether a different product results therefrom. In any case, the discussion of Example 35 does not set forth any products prepared by the method of Valint, Jr. or Grobe III, wherein the carbonized silicone material is treated by attachment of hydrophilic polymer chains for comparison with a product according to the instantly claimed invention. Furthermore, the product described in Example 35 that is obtained by treatment with a hydrophilic polymer and grafting with a monomer is not representative of a product obtained by the method set forth in instant claim 28 of the instant invention and corresponding to the rejected product by process claims.

With respect to Valint, Jr. et al or Grobe, III et al, applicant argues that the references teach monomer grafting directly after the activation step, while applicant includes a monomer grafting step after steep (b). does not teach a step of treatment with a hydrophilic polymer in the presence of an initiator or catalyst. It is agreed that the only initiator taught is the plasma treated silicone base that would be expected to function as an initiator because of the activated sites. The product obtained would be expected to correspond to the instantly claimed product because it has a carbon polymer layer made hydrophilic by plasma oxidation treatment. The product can also include attached hydrophilic polymer chains obtained by grafting.

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With respect to the rejections of record under 35 USC 102, Applicant argues that the products obtained by the method as set forth in the amended claims are obviously different compared with the products in the prior art. It is agreed that significantly improved hydrophilic, water absorption and adhesion properties are shown in the Examples of the invention compared with the comparative examples in the specification. The reasons why this argument is persuasive or not persuasive with respect to each cited reference are set forth herein above.

With respect to J '207 and applicant's arguments on pages 32-33 in the remarks, the rejection of claims over J '207 is maintained for the following reasons. Applicant argues that the data in the 02/04 Kanazawa Declaration on pages 4-5 shows that the durability of hydrophilic property of the product produced by the method disclosed by J '207 and the method according to the instant invention (claim 28) is very different. The method of Example 1 in J '207 appears to produce a product that does not retain its hydrophilic property after washing with boiling detergent solution. However, the comparison of the product employed to represent the instantly claimed invention and the product employed to represent J '207 is not found persuasive because different hydrophilic polymer solutions were employed in different concentrations at different temperatures and for different times. It is not clear which variables caused the different properties observed. It is not clear whether the difference in properties can be attributed to the formation of carbonyl groups as set forth in instant claim 28 or the presence of an initiator or to the difference in hydrophilic solution or to some other variable.

With respect to Young, Sr. et al and applicant's arguments on pages 33-34 of the remarks, the rejection of claims over Young, Sr. et al is maintained for the following reasons. An example according to the method disclosed by Young, Sr et al is set forth on page 6 of the 02/04 Kanazawa Declaration.

Activated PP fibers are treated with PRIMACOR 4990 in the absence of an initiator and the product was shown to lack durability and considered not to comprise chemical bonds between the polymers. The comparison is not considered to be persuasive because there are not example of the instant invention

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wherein PRIMICOR 4990 is employed as hydrophilic polymer. Therefore, it is not clear whether the different properties are obtained as a result of the presence or absence of an initiator or because of the difference in hydrophilic polymer employed.

The rejection of product by process claims 46, 48-53, 55 and 56 as being anticipated by Ikada et al (4,743,258) is hereby withdrawn. The comparative data in the Declaration of Hitoshi Kanazawa filed 02-17-2004 has been considered. The data in the Declaration shows that the product of Comparative Example 11 is different from the product obtained by the method of the invention wherein an activation step that provides the recited ratio of carbonyl groups to methyl groups is employed because the grafted-on polymer is removed by washing in boiling water. Thus the product by process claims in the instant invention are considered to be patentable over Ikada et al. Also, the comparative data in the Specification shows that water absorption (%) of materials treated by activation before treatment with a hydrophilic polymer is improved. See the data in Table 1.

#### **METHOD CLAIMS:**

Ikada et al: The rejection of method claims 28, 29, 32-36, 38 and 42 and corresponding product claims as being anticipated by Ikada et al (4,743,258) is withdrawn in response to the amendment of claim 28 and upon reconsideration of the disclosure. Ikada et al do not teach an activation step of polypropylene wherein the instantly claimed ratio is observed. Upon reconsideration, Ikada et al teach two alternative methods (A) and (B) as set forth in column 2, line 55, to column 3, line 21, and disclose a method for bonding a hydrophilic polymer to a base polymer by urethane coupling using hexamethylene diisocyanate as coupling agent in Example 6. It is agreed that Ikada et al do not disclose a method comprising the combination of activation to form radicals on the surface of the base material and treating the activated base substrate with a hydrophilic polymer in the presence of an initiator or catalyst.

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With respect to the rejection of claims over Wang et al in view of Ikada et al, the rejection is withdrawn for the reasons set forth above with respect to the teaching of Ikada et al. Ikada et al do not teach an activation step of polypropylene wherein the instantly claimed ratio is observed. Example 38 and comparative Example 12 in the Declaration of Hitoshi Kanazawa filed 02-17-2004 have been considered. The Declaration alleges that wettability to water and improved adhesion property is obtained in example 38 according to the invention but does not provide any data to support the allegation. There are too many variables in the examples being compared, therefore it is not clear whether any differences in properties are obtained because of the different method steps, such as use of solvent or no solvent, kind of activation step, or presence of initiator or because of the different kinds of materials employed, such as polyethylene glycol and acrylic acid or polyvinyl pyrrolidone, acrylamides and diacrylate monomers.

With respect to the rejection of claims over Bamford in view of Ikada et al, the rejection of claims is withdrawn for the reasons set forth above with respect to the teaching of Ikada et al. Ikada et al do not teach an activation step of polypropylene wherein the instantly claimed ratio is observed. Example 39 and comparative Example 13 in the Declaration of Hitoshi Kanazawa filed 02-17-2004 have been considered. Example 39 does not include the step of grafting a monomer onto the activated and hydrophilic polymer treated substrate that is included in Comparative Example 13. The Declaration alleges that the properties obtained in example 39 according to the invention are not provided by the method shown in comparative Example 13. However, it is the examiner's position that the comparison cannot be relied upon to show a difference in the properties of the products obtained by the methods employed. The reason is that the product obtained in comparative example 13 comprises a grafted acrylic acid layer on a poly(hydroxyethyl acrylate) layer on a polypropylene film, while the Example 39 product comprises a poly(hydroxyethyl acrylate) layer on a polypropylene film corresponding to a product obtained by the method set forth in instant claim 28.

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### Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 28-39 and 41-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to claim 28, it is not clear what the "ratio of corresponding value to the case of polypropylene" when the polymeric material is not polypropylene would be. The examiner has not found any disclosure describing how one of ordinary skill in the art would know how to measure the ratio due to newly formed carbonyl groups to methyl groups and whether the ratio for a polymeric material other than polypropylene is a corresponding value to the value set forth for polypropylene. In claims 38 and 39, the phrase "monomer is at least one acrylic acid,..." is unclear. With respect to claim 41, this claim no longer further limits claim 29 since the limitations of claim 41 are now recited in claim 29. Note also claim 45, which depends form claim 41. Claim 42 lacks antecedent basis for the phrase "presence or absence of catalysts, initiators or photo-sensitizers" in claim 29 because claims 28 and 29 now require the presence of initiators or catalysts.

#### Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 46-59 are drawn to polymeric materials obtained by the method of claim 28. The product by process claims are considered to read on prior art products that are produced by a different method wherein the product is reasonably expected to be the same in the absence of evidence to the contrary.

With respect to claims 48-53, 55, 56 and 59, although the claims recite "wiping/cleansing material",

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"filter mediums", etc., each claim, as written, requires only the presence of a polymeric material obtained by the method of claim 28.

Claims 46-53, 55, 56 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by J 11067183. J '183 discloses a polyolefin treated with a hydrophilic resin in the presence of a persulfate initiator. The hydrophilic resin would be expected to be bonded to the polyolefin when treated in the presence of the persulfate initiator. There is no evidence of record to show that the product obtained is significantly different from the instantly claimed product obtained by activation of the polyolefin before reaction with the hydrophilic resin. J '183 specifically teaches a separator.

Claims 46, 48, 50-53, 55, 56 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 09-143884. J '884 discloses a synthetic fiber cloth to which a polysiloxane has been applied which is treated by a plasma treatment and then by applying a hydrophilic resin to the treated cloth. The product obtained would be expected to correspond to the instantly claimed product because the hydrophilic resin would be expected to bond to the activated fiber cloth in the absence of an additional initiator or catalyst, in the absence of evidence to the contrary.

Claims 46, 48-53, 55 and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by JP4253231. J '231 discloses a highly functional film comprising a water-soluble vinyl polymer bonded to the surface of plasma treated polytetrafluoroethylene. The product obtained would be expected to correspond to the instantly claimed product because the water-soluble vinyl polymer is bonded to the PTFE material. There is no evidence of record to show that a significantly different product is obtained in the presence of an initiator or catalyst other than the plasma treated PTFE.

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Claims 46, 50, 51, 53, 55 and 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Valint, Jr. et al (6,213,604). Valint, Jr. et al disclose plasma oxidation treatment of a silicone material followed by plasma polymerization of a hydrocarbon monomer to provide a polymeric hydrocarbon layer that is further treated with plasma to render it hydrophilic or treated by attachment of hydrophilic polymer chains. See the Abstract, column 3, lines 38-67, column 4, line 59, to column 5, line 12. The product is a contact lens having a hydrophilic polymeric coating on a silicone base.

Claims 46, 50, 51, 53, 55 and 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Grobe, III et al (6,200,626). Grobe et al disclose plasma oxidation treatment of a silicone material followed by plasma polymerization of a hydrocarbon monomer to provide a polymeric hydrocarbon layer that is further treated with plasma to render it hydrophilic or treated by attachment of hydrophilic polymer chains. See the Abstract, column 3, lines 38-67, column 4, line 59, to column 5, line 12. The product is a contact lens having a hydrophilic polymeric coating on a silicone base. The plasma treatment would be expected to provide numerous active sites for chemical reaction with the hydrocarbon monomer, providing a hydrocarbon polymer on the surface of the silicone material that is made hydrophilic by further plasma treatment.

Claims 46, 48-53, 55, 56 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by JP62019207. J '207 disclose a process for treating a hydrophobic porous film with corona discharge and further treating with a solution of polyol to afford a hydrophilic property to the film. The corona discharge treatment would be expected to provide numerous active sites for chemical reaction with the polyol, thus providing a product having a hydrophilic polymer chemically bonded to the hydrophobic porous film, in the absence of evidence to the contrary.

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With respect to the product claims included in the rejections set forth above, the burden is hereby shifted to applicant to establish by effective argument and/or objective evidence that the prior art product(s) or process(es) do not necessarily possess the characteristics of the claimed products or processes. Note In re Spada, 911 F. 2d 705, 709, 15 UPQ2d 1655, 1658 (Fed. Cir. 1990): "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not". Note In re Best, 562 F. 2d775, 195 USPQ 433 (CCPA 1977): "Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product". Note In re Fitzgerald, 205 USPQ 594 (CCPA 1980): The reference discloses all the limitations of the claim(s) except a property or function and the examiner cannot determine whether or not the reference inherently possesses properties or functions which anticipate the claimed invention. See MPEP 2112-2112.02. Note In re Marosi, 710 F 2d 799, 218 USPQ 289 (Fed. Cir. 1983) and In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985): The reference teaches a product that appears to be the same as the product set forth in the product by process claims, although produced by a different process. See MPEP 2113.

#### Allowable Subject Matter

Claim 28 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 29-39, 41-45, 54, 57 and 58 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art cited herein and otherwise known to the examiner does not teach the instantly claimed method comprising steps (a) and (b) set forth in claim 28 wherein the polymeric material is polypropylene and the activation step provides the ratio of carbonyl groups to methyl groups set forth in

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claim 28 and wherein the weight increase of the treated polymeric material is less than 5 wt. %, as set forth in claim 28. the products set forth in claims 54, 57 and 58 are not suggested by the prior art.

#### Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Susan W Berman Primary Examiner Art Unit 1711

SB May 13, 2004